

321 To be attended to immediately & completed  
before December 31st 79

- I Faradic machine No. 4
- II 100 lamp cups
- III 100 pair of lamp clamps Platinum
- III gear up pumping motor
- V switch for central station regulator
- VI get up 15 double burner chandeliers
- VII fit up the motor sample etc.
- VIII 10 street lights
- IX Double hand side-walk on the square  
to Depot
- X get Kent wire for street lamps
- XI Central Station cleaned  
retained & fixed up.

Dec. 20th 1879  
J.K.

-1867-

John Kruesi  
Memorandum:  
Preparations for  
Electric Light  
Exhibition

[Menlo Park,] Dec. 20th 1879

321<sup>1</sup> To be attended to immediately<sup>a</sup> & completed before  
December 31st 79<sup>2</sup>

- I Faradic machine No. 4<sup>3</sup>
- II 100 lamp cups<sup>4</sup>
- III 100 pair of lamp clamp Platinum<sup>5</sup>
- III gear up pumping motor
- V switch for Central station regulator<sup>6</sup>
- VI fit up 15 double burner chandeliers

October-December 1879

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VII fit up the meter complete<sup>7</sup>

VIII 10 Street lights<sup>8</sup>

IX double board sidewalk on the square to Depot

X get Kerite wire for street lamps

XI Central station cleaned oilclothed & fixed up.

J[ohn] K.[ruesi]

ADS, NjWOE, Cat. 1308:203, Batchelor (*TAEM* 90:768; *TAED* MBN003:75). Written by John Kruesi. "Obscured overwritten text.

1. This is the order number; see Doc. 1687 n. 1.

2. John Kruesi had already made preparations for the manufacture of a substantial number of lamps. On 2 December he ordered the shop to "Make 4 Glassblower tables with balows same as the wooden one in use" and to "Make 4 Carbonizing chambers of wrought iron." On 10 December he requested "an instrument for measuring resistance of carbons," and that day or the next he called for the shop to "Have 12 muffles made for us" for carbonizing. Cat. 1308:197, 199 (Order Nos. 304-5, 307-8), Batchelor (*TAEM* 90:765-66; *TAED* MBN003:72-73).

3. Kruesi gave instructions for the construction of this machine on 13 December. He specified "9.62 inches bore of magnets Make armature 9.05 diameter of iron wire Wind 4 layers in threes of .042 wire 39 coils six wire in width the same as No. 2 Measure carefully when made." Later he added, "Make wooden core 6¼ in Diameter order for T.A.E." Cat. 1308:201 (Order No. 313), Batchelor (*TAEM* 90:767; *TAED* MBN003:74).

4. Presumably a base or holder. The type drawn by Samuel Mott in November (see Doc. 1838 n. 5) was used during the exhibition. "Edison's Light," *New York Herald*, 21 Dec. 1879, Cat. 1241, item 1379, Batchelor (*TAEM* 94:537; *TAED* MBSB21379X).

5. Charles Batchelor had already requested on 15 December "200 platinum clamps for lamps like previous ones," presumably those discussed in Doc. 1861. Cat. 1308:201 (Order No. 316), Batchelor (*TAEM* 90:767; *TAED* MBN003:74).

6. It is not clear exactly what this switch was. Edison referred to his regulator as a rheotome, an instrument for interrupting an electrical current (*OED*, s.v. "Rheotome"). It consisted of a number of buttons or contact points which could be rotated to provide more or less contact with a series of resistance coils, and an index wheel. He later testified that it was first used at the laboratory in June or July 1879 and then, in preparation for the demonstration, it

was placed in the second story and the handle of the rheotome was connected by a rod to a table in the first story where the galvanometer indicating the electric pressure upon the system was placed. Placing the coils of wire in one story and means for indicating the pressure in another story was for the purpose of preventing any action on the galvanometer of the current which passed through the coils. The coils and this rheotome were interpolated in the circuit of the field of force magnets and a greater or lesser number of coils could be thrown in the circuit by moving the arm of the rheotome, thus varying the strength of the current in the consumption circuit

to meet various conditions. [Edison's testimony, 15–16, *Keith v. Edison v. Brush*, Lit. (*TAEM* 46:121–22; *TAED* QD002:8–9)]

A mirror galvanometer indicated voltage in the main circuit and a laboratory assistant made adjustments as needed by “turn[ing] an indicator, near which is an electric light, just as they do in a gas house when more or less pressure is called for by the consumption” (“Electricity and Gas,” *New York Herald*, 30 Dec. 1879, Cat. 1241, item 1401, Batchelor [*TAEM* 94:555; *TAED* MBSB21401X]).

On 19 December Edison drafted a provisional British specification and a U.S. caveat for regulating electrical generation by means of resistance coils and a rotating commutator (not referred to as a rheotome). He filed British Patent 33 ([1880], Batchelor [*TAEM* 92:146; *TAED* MBP022]) on 3 January; the caveat has not been found but Edison testified that it was Caveat 94, dated 26 December. Edison's testimony, 14, *Keith v. Edison v. Brush*, Lit. (*TAEM* 46:121; *TAED* QD002:8); Edison's draft is in Cat. 1146, Lab. (*TAEM* 6:650; *TAED* NMo14U); William Carman copied this into Cat. 997:127, Lab. (*TAEM* 3:415; NE1695:64).

7. On 2 December Kruesi instructed the shop to “Alter the electric Light meter” but gave no details. Cat. 1308:197 (Order No. 303), Batchelor (*TAEM* 90:765; *TAED* MBN003:72).

8. On 2 December Kruesi had ordered the shop to “Have street lamp posts made & make sketch for same”; the sketch has not been found. Cat. 1308:197 (Order No. 306), Batchelor (*TAEM* 90:765; *TAED* MBN003:72).